

directly and, if it appears necessary to remove the carotid en bloc, carotid artery backflow pressures are accomplished by directly catheterizing the carotid artery. If the backflow pressure is more than 50 mm of mercury, it is safe to proceed to remove the involved carotid artery. With these pressures patients will not sustain postoperative neurologic deficit. If pressures are less than 50 mm of mercury, a grafting procedure is done. Grafting may involve end-to-end anastomosis with a Gore-Tex (expanded polytetrafluoroethylene sutures) graft or vein graft. If an end-to-end anastomosis is not possible due to an inadequate distal carotid artery, a bypass graft involving an extracranial-to-intracranial graft may be necessary.

It may also be advisable to proceed with this type of carotid artery management in instances of massive neck wound breakdown following a radical head and neck operation. When the carotid artery is exposed and unprotected by dermal graft, early aggressive artery treatment may prevent catastrophic hemorrhage. We have found the early recognition of carotid artery involvement and its treatment a valuable addition to the care of patients with head and neck cancer.

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REFERENCES

Bole PV, Babu S, Clauss RH: Planned extra-anatomic cerebral revascularization for carotid artery ligation. *Surgery* 1978 Apr; 83:440-444

Chilcote WA, Modic MT, Pavlicek WA, et al: Digital subtraction angiography of the carotid arteries: A comparative study in 100 patients. *Radiology* 1981 May; 139(2):287-295

Nieto CS, Solano JME, Martinez GB, et al: Invasion of the carotid artery in tumors of the head and neck. *Clin Otolaryngol* 1981 Feb; 6(1):29-37

Carbon Dioxide Lasers in Managing Basal Skull Tumors

THE CARBON DIOXIDE LASER, of all lasers now available, seems best suited for surgical excision of neoplasms of the base of the skull. Our most extensive experience has been with treating acoustic neurilemoma tumors of the internal auditory canal and cerebellopontine angle. The carbon dioxide laser is strongly absorbed by water and thus is not color dependent, as is the argon laser. Rapid tumor reduction by the vaporization feature of the carbon dioxide laser is possible. It can easily vaporize nonvascular fibrous tumors as well as those that are highly vascular. Another clear advantage of the carbon dioxide laser is that it provides hemostasis at the time of tumor reduction, obviating the need for another instrument in the surgical field.

The carbon dioxide laser is a precise, gentle, light scalpel, producing no traction or compression of adjacent normal neural tissue. This laser is attached to an operating microscope and is controlled by a micromanipulator that allows precise placement of the helium neon-aiming beam. This aiming beam is important because the carbon dioxide laser is in the infrared spectrum and therefore invisible. A power density adjustment is useful in altering spot size and energy intensity, thus allowing a very small focal point for fine dissection or an increase in spot size for rapid tumor vaporization. Using the laser does not alter the mobility of the microscope as the laser head is separate, that is, connected to the microscope by an articulated arm.

We are impressed with the decreased operating time and postoperative morbidity with carbon dioxide laser use for basal skull tumors.

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REFERENCES

Smith MFW: Hearing conservation and the CO₂ laser in acoustic neurilemoma excision. *In* Brackmann DE (Ed): *Neurological Surgery of the Ear and Skull Base*. New York, Raven Press, 1982, pp 243-245

Smith MFW: Carbon dioxide laser in cerebellopontine angle tumors. *Otolaryngol Head Neck Surg* 1982, in press

Surgical Speech Rehabilitation After Total Laryngectomy

PROGRESS CONTINUES in surgical voice restoration after laryngectomy. The successful results of the tracheoesophageal puncture technique devised by Blom and Singer have been continued by others through multiinstitutional collaborative studies. The technique fulfills most of the criteria for surgical speech rehabilitation: it is simple; it may be accomplished secondarily to a surgical procedure (though recent investigators are reporting "primary" use of the technique, with patients leaving the hospital after a laryngectomy with full speech); it does not interfere with the original therapy (surgical or irradiation), and it is relatively free of complications. In addition, it is relatively successful with regard to the twin problems that plague procedures of this sort—stenosis and aspiration. It is far superior to any of the other "neoglottic" or glottic reconstructive procedures recently described.

On the negative side, though the procedure is simple and can be accomplished under local anesthesia, postoperative care is mandatory, but is much simpler than teaching esophageal speech.

There are a number of problems to overcome, such as prosthesis dislodgement, poor patient motivation and gastric distension. Close cooperation between the otolaryngologist and speech pathologist is mandatory.

With additional refinements, this is the best procedure for surgical vocal rehabilitation following laryngectomy available today. More recent efforts center on the development of an additional valve that will allow stomal closure (and speech) without the necessity of occluding the stoma with the finger or alternative valving mechanisms.

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REFERENCES

- Johns ME: The Panje button. *Laryngoscope* 1982 Feb; 92:204-205
- Leipzig B: Neoglottic reconstruction following total laryngectomy—A reappraisal. *Ann Otol Rhinol Laryngol* 1980 Nov-Dec; 89(6):534-537
- Panje WR: Prosthetic vocal rehabilitation following laryngectomy—The voice button. *Ann Otol Rhinol Laryngol* 1981 Mar-Apr; 90(2):116-120
- Singer MI, Blom ED: An endoscopic technique for restoration of voice after laryngectomy. *Ann Otol Rhinol Laryngol* 1980 Nov-Dec; 89(6):529-533

New Treatment for Fractures of Edentulous Mandibles

FRACTURES OF EDENTULOUS MANDIBLES are a challenging problem. The nonunion rate has been reported at 20 percent. Most of the techniques require elaborate external or intraoral fixation appliances or splints to adequately reduce and immobilize the fracture fragments. One technique, "dynamic and eccentric dynamic compression plating," has been reported by Levine and Goode at Stanford University Medical Center. This technique has been used to treat 20 fractures of edentulous, or nearly edentulous, mandibles with a 94 percent bony healing rate. Developed by Speissl and co-workers in Switzerland, it involves open reduction and application of an internal four-screw stainless-steel fixation plate that both fixates the fracture and applies constant compression to the fracture line, which has been shown in experimental animals to stimulate bony healing. This technique also provides normal mobility of the mandible during the healing period, allowing resumption of a relatively normal diet and daily activities.

The application of this technique not only holds promise for the treatment of fractures of the edentulous mandible, but also may prove useful for the treatment of fractures of mandibles with full dentition and in stabilizing bone graft frag-

ments in the replacement and reconstruction of mandibles for traumatic and oncologic deformities.

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REFERENCES

- Levine PA, Goode RL: Mandibular fracture reduction with eccentric dynamic compression plate: A new treatment for an old problem. *Otolaryngol Head Neck Surg* 1981 Jul-Aug; 89(4):569-574
- Levine PA, Goode RL: Treatment of fractures of the edentulous mandible. *Arch Otolaryngol* 1982 Mar; 108:167-173

Surgical Procedure for Progressive or Fluctuant Sensorineural Hearing Loss in Children

WHAT SHOULD BE our approach to children with a fluctuating sensory hearing level, a progressive loss of hearing, or both? Endolymphatic sac (ELS) operations have sometimes been suggested for patients with this problem, but it is only recently that a series of children has been shown to benefit from this type of procedure. Before recommending this type of intervention in this delicate and susceptible population, one must have a perspective of the procedure itself and a balanced approach to the parents and these unusual and perplexing patients.

ELS operations until recently have been shown to be of benefit only to adults with Ménière's disease (a rarity in children); the physiologic changes occurring as a result are unknown or sketchy at best. In children particularly an attempt at absolute diagnosis is essential before the designation "cochlear hydrops," which after all is a pathologic and only marginally clinical diagnosis.

A detailed maternal history (including pregnancy, delivery and the perinatal period), with a patient history seeking familial or pedigree problems, is mandatory. A story of vertigo should be sought but is very rarely a complaint in children. A perilymphatic leak from either window must be suspected, sometimes with little vestibular disturbance, and an objective fistula test with impedance bridge and electronystagmographic (ENG) leads is a minimum vestibular assessment. Late walkers or clumsy children should have a more formal test if old enough.

The examination should include neurologic, motor development, speech and language assessments. Audiometry examination with a check against recruitment is basic. An auditory brain stem response (ABR) or electrocochleographic pattern with high spikes or multi peaked waves has been described in association with the Mondini